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ABSTRACT

A mailed questionnaire surveyed 1,000 randomly-selected public school districts on home and school computer use. Questions addressed responsibility for the computer's introduction in educational instruction, how computers are used, the number of families with home computers, the purpose for which families are purchasing home computers, whether home computers are being used for educational purposes, and how schools are adapting their policies and procedures to facilitate instructional computing at home and school. Based on a 27% return rate, results indicate that (1) on the average, 10 to 15% of the families in the 268 districts represented owned a home computer; (2) school superintendents and principals were the driving force behind the introduction and use of computers in the schools; (3) 96% of the schools responded that their districts were currently using microcomputers for instructional purposes, including computer literacy, computer science, and computer-assisted instruction; (4) although schools agreed that the use of educational technology in the home and in the classroom would radically alter school structures and procedures, they indicated that the necessary policies, procedures, and programs to facilitate a broad and successful use of computers for educational purposes have not been developed; and (5) parents needed guidance in the selection of hardware and courseware for educational purposes. (LMM)

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...SERVING AMERICAN EDUCATION THROUGH SCHOOL BOARD LEADERSHIP

SCHOOL/HOME COMPUTER SURVEY

JUNE 1984

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SAMPLE SELECTION

This past April, the National School Boards Association (NSBA) in collaboration with the National Institute of Education (NIE), conducted a survey on home and school computer usage. A questionnaire was designed and sent to 1,000 randomly selected school districts across the U.S. These districts were provided to NSBA by Market Data Retrieval of Connecticut. They are from its current lists of all public school districts and are statistically representative of the National Center for Education Statistics current enrollment figures. There was a 27 percent rate of return.

The survey, was designed to obtain information from the following questions:

- Who is responsible for the introduction of computers in educational instruction?
- How are computers used in local school districts?
- What is the average number of families in local school districts with home computers?
- For what purposes are families purchasing home computers?
- Are home computers being used for educational purposes?
- How are schools adapting their policies and procedures to facilitate the use of computers for instructional purposes in the home and school?

Caution must be exercised in interpreting the findings.* However, the findings do provide a general overview of what is happening in some of our nation's school districts.

FINDINGS

Ninety-two percent of the respondents indicated that superintendents, principals, and teachers were the ones who strongly encouraged the introduction of computers into school districts. Sixty-six percent specified that the school board, while 60 percent said that parents were strongly encouraging the use of computers. Twenty percent of the respondents felt the computer industry is playing an important role in this issue.**

Ninety-six percent of the schools responded that their districts were currently using microcomputers for instructional purposes, including computer literacy, computer science, and computer-assisted instruction (CAI).

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* The actual school district size was not available at the time.

** Percentages total more than 100 because of request for multiple responses.

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Overall, few districts indicated that all of their students were involved in computer literacy programs, computer-assisted instructional programs, or a computer science program; except in the area of vocational education where 36 percent of the respondents indicated that all their students were involved in the computer-assisted instruction.

However, 50 percent of the respondents did indicate that some students were involved in computer-assisted instruction at all grade levels. Over 50 percent of the respondents had some secondary students involved in computer literacy, while just under 40 percent had some middle school students involved. About 35 percent had some elementary students engaged in computer literary programs.

The majority (79 percent) of the districts that responded indicated that computers had not changed the methods or content of instruction in their schools. Of the 17 percent that reported that computer usage had altered the methods or the content of instruction, mathematics, business education, English, and the sciences were the most affected, in that order.

Slightly more than one out of three school districts (35 percent) reported that computer usage had enabled their students to take advanced courses or a variety of courses that otherwise would not have been available to them. Again, most of these courses were math-oriented and included advanced calculus, computer programming, and accounting.

Physically handicapped students' access to computer-assisted education appeared to be restricted. Only 19 percent of the responding school districts reported some handicapped students involved in computer-assisted instruction. While only 8 percent or less of the responding districts had some handicapped students involved in computer literacy and computer science programs.

When computers were used for instructional purposes, only 4 percent of the respondents did all instruction by computer. Nearly 87 percent did some instruction by computer, with an average of 30 percent of instruction being done by computer.

To what extent does computer-assisted instruction (CAI) allow students to work independently? Thirteen percent of the responding districts stated that CAI allows students to work independently, once they master the basics. Thirty-four percent stated students work alone to a greater extent, 18 percent to some extent, 20 percent to a limited extent, and 2 percent said students never work independently.

How successful is computer-assisted instruction (CAI) when students work alone? Two-thirds of the responding districts felt that they had "good" to "excellent" success. Eleven percent felt that they had "limited" success (usually limited by the availability of equipment). Sixteen percent indicated that it was too early in their program to make judgments on the success of CAI.

The variables cited as having an impact on how successful CAI was when students work independently, were:

- the quality of the software;
- the ability of the student;
- the content of the instructional program; and
- the instructor's personal priorities.

One district reported that a parent complained that computers were being used for "busy work" -- simply to keep students occupied.

With regard to school board policies or guidelines concerning computer-assisted instruction, 86 percent responded that they had no policy nor guidelines in the selection of courseware or software, and 68 percent indicated that they had no policy on the selection of textbooks that apply to computer courseware or software. However, of those responding, 53 percent stated that the home use of educational technology would cause changes in the policies, structures, or regulations of their school districts.

Computers and software were funded through board approved budgets in 55 percent of the responding districts. Another 40 percent were at least partially funded by board approved budgets. What specific funding sources are used to buy computer hardware? Eighty-nine percent used local funding, 74 percent federal, 59 percent state, 29 percent from parent groups, 14 percent from other private sources.

Respondents were requested to estimate the number of families in their school district with home computers. Based on responses given, approximately 10 to 15 percent of families in the 268 districts had home computers. The majority of the families used their computers, primarily for entertainment (89%), then for education (85%), business (60%), and family finances (41%). Among families buying home computers for educational purposes, 64 percent did so to get a headstart on courses offered in school; 34 percent for additional courses that were not available in school; and 31 percent as remediation for children having academic difficulties.

Most of the families using computers for educational purposes were covering the traditional academic subjects rather than peripheral ones. For example, 79 percent believed that home computers were being used for math, 48 percent for spelling, 39 percent for English, 27 percent for science, and 25 percent for writing. In the peripheral area, 38 percent indicated that home computers were being used for typing practice, compared to 16 percent for SAT preparation, 7 percent for music, and 6 percent for art.

Although the majority of respondents believed that the families who purchase home computers did so mainly for educational purposes, these same respondents indicated that the home computers were used less than 25 percent of the time for education.

Only 3 percent of the districts surveyed had specific educational projects and programs that connected school computers with home computers. Yet, almost 50 percent reported that school computers were available for use after school hours to families that did not own home computers. Forty-four percent of the districts offered instruction to parents on the home-education uses of computers.

Only 7 percent of the districts had home schoolers who were using computers for instruction to any great degree. However, very seldom did those home schoolers receive credit for work done at home.

Sixty-three percent of the school officials believed that the main problems confronting home computer users were locating and identifying course materials. Forty-one percent would have preferred parents to be better trained as consumers, and 35 percent blamed computer operations as one of the problems.

The survey results indicated that, in addition to computers, 84 percent of the school districts utilized videotape recorders; 52 percent cable television; 20 percent video discs, and other technology.

Conclusions:

1. On the average, 10 to 15 percent of the families of these districts owned a home computer.

2. School superintendents and principals were the driving force behind the introduction and use of computers in the schools.

3. Although schools agreed that the use of education technology in the home and in the classroom would radically alter school structures and procedures, they indicated the necessary policies, procedures, and programs to facilitate a broad and successful use of computers for educational purposes have not been developed.

4. Parents needed guidance in selecting what hardware and software courses to purchase for educational purposes.

Computers are not the only new technology being used by school districts:

- 84% have videotape recorders,
- 52% use cable television,
- 20% use video discs,
- 18% have access to databases via telecommunication,
- 7% use teleconferencing,
- 7% use electronic mail, and
- 3.5% are using robots or robotics programs.

It is clear that the growth of new technologies in our society is having its impact on our schools. The schools are making efforts to keep pace with the growth of this phenomenon. Schools are acquiring the hardware, the software, the instructional expertise, and the local support for these new programs. Policies, regulations, and guidelines for the development and implementation of sound instructional programs in the new technologies are not keeping pace.